

U.S. Patent Application Serial No. 10/826,501
Amendment filed May 22, 2008
Reply to OA dated February 22, 2008

REMARKS:

Claims 1-16 are currently pending in this application. Claims 1, 6, 10 and 12-16 have been amended herein.

A. The Examiner has rejected claims 13 and 14 under 35 U.S.C. §101 as being directed to non-statutory subject matter.

Applicants respectfully traverse this rejection, for the following reasons.

Claims 13 and 14 have been amended herein. Claim 13, as amended, sets forth *inter alia* "A computer readable recording medium storing a photographing control program of an electronic device." Claim 14, as amended, sets forth *inter alia* "A computer readable recording medium storing a photographing control program of an electronic device."

A computer readable recording medium is a computer element which defines structural and functional interrelationships between a computer program and the rest of the computer which permit the computer program's functionality to be realized. Thus, a computer readable recording medium is statutory.

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Accordingly, in view of the above, Applicants respectfully submit that this rejection should be withdrawn.

B. The Examiner has rejected claims 1, 3, 4, 6-8, 10, and 12-16 under 35 U.S.C. §103(a) as obvious over U.S. Patent No. 4,969,003 (Ohnuki '003) in view of U.S. Patent No. 5,815,748 (Hamamura '748).

Applicants respectfully traverse this rejection, for the following reasons.

The amended claim 1 has "a controller that decides whether the optical system is in a final lens position or not during a focusing action of said focusing mechanism due to said switch, and in the case where a shutter operation of said switch is performed under a state that the optical system is not in the final lens position, shifts said optical system to a fixed focus position from an auto-focusing position and takes a fixed focus image."

The amended claim 6 has "a controller that decides whether the optical system is in a final lens position or not during a focusing action of said focusing mechanism due to said switch, and in the case where a shutter operation of said switch is performed under a state that the optical system is not in the final lens position, takes an image at a focus position in the middle of the focusing

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action."

Column 18, lines 54-59 of **Ohnuki '003** (listed by the Examiner in the Office Action regarding claims 1 and 6, before the amendments herein) states as follows: "And, in a case where the switch SW2 turns on at a time during the above-described cycle of focus adjustment, and the release interruption occurs, the release operation immediately follows. At the time point of the completion of the exposure preparation, the lens is stopped and the exposure operation is carried out."

Column 20, lines 11-15 of **Hamamura '748** (listed by the Examiner in the Office Action) states as follows: "If, in #54, detection of the focus condition is judged to have been unsuccessful the focal point of the taking lens L is moved to a predetermined position, for example, to the position corresponding to the middle point of the possible shooting range (#62)."

If the amended claim 1 or 6 is compared with **Ohnuki '003** and **Hamamura '748**, while the amended claims 1 and 6 have the structure that whether the optical system is in a final lens position or not is decided during a focusing action of said focusing mechanism, **Ohnuki '003** and **Hamamura '748**, alone or in combination, do not disclose such structure.

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The amended claims 1 and 6 have a controller that in the case where a shutter operation of the switch is performed under a state that the optical system is not in the final lens position, shifts the optical system to a fixed focus position from an auto-focusing position and takes a fixed focus image (the amended claim 1), or takes an image at a focus position in the middle of the focusing action (the amended claim 6).

To the contrary, **Ohnuki '003** merely stops the lens and carries out the exposure operation at the time point of the completion of the exposure preparation in a case where the release interruption occurs during the cycle of focus adjustment. **Hamamura '748** merely moves the focal point of the taking lens to a predetermined position if detection of the focus condition is judged to have been unsuccessful.

As described above, **Ohnuki '003** and **Hamamura '748**, alone or in combination, fail to describe, teach, or suggest the features set forth in claim 1, as amended. As described above, **Ohnuki '003** and **Hamamura '748**, alone or in combination, fail to describe, teach, or suggest the features set forth in claim 6, as amended.

The structure of the amended claim 1 having "a controller that decides whether the optical system is in a final lens position or not during a focusing action of said focusing mechanism due to said switch, and in the case where a shutter operation of said switch is performed under a state that

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the optical system is not in the final lens position, shifts said optical system to a fixed focus position from an auto-focusing position and takes a fixed focus image" and the structure of the amended claim 6 having "a controller that decides whether the optical system is in a final lens position or not during a focusing action of said focusing mechanism due to said switch, and in the case where a shutter operation of said switch is performed under a state that the optical system is not in the final lens position, takes an image at a focus position in the middle of the focusing action" are not disclosed or taught by **Ohnuki '003** and **Hamamura '748**, alone or in combination.

In the Office Action dated February 22, 2008, on page 6, the Examiner has improperly suggested that:

An advantage of driving a focus lens to a fixed, central point is that the chances of an image being in focus are maximized when an original focus cannot be achieved. For this reason, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have **Ohnuki's** system drive its focus lens to a middle point, as described by **Hamamura**.

The Examiner has misapplied the teachings of **Ohnuki '003** and **Hamamura '748**. In **Ohnuki '003** and **Hamamura '748**, if a focal point is moved to a predetermined position from the vicinity of focus, an image becomes out of focus, and this inconvenience cannot be avoided. It cannot be said that the chances of an image being in focus are maximized.

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Ohnuki '003 and Hamamura '748, alone or in combination, fail to describe, teach, or suggest the combination of features set forth in claim 1, as amended, including at least the following features:

a switch that functions as a focusing switch and also functions as a shutter switch, wherein said switch when operated orders a focusing action or orders capturing of the image; and a controller that decides whether the optical system is in a final lens position or not during a focusing action of said focusing mechanism due to said switch, and in the case where a shutter operation of said switch is performed under a state that the optical system is not in the final lens position, shifts said optical system to a fixed focus position from an auto-focusing position and takes a fixed focus image.

Ohnuki '003 and Hamamura '748, alone or in combination, fail to describe, teach, or suggest the combination of features set forth in claim 6, as amended, including at least the following features:

a switch that functions as a focusing switch and also functions as a shutter switch, wherein said switch according to a condition of operation orders a focusing action or the capturing of the image; and a controller that decides whether the optical system is in a final lens position or not during a focusing action of said focusing mechanism due to said switch, and in the case where a shutter operation of said switch is performed under a state that the optical system is not in the final lens position takes an image at a focus position in the middle of the focusing action.

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Ohnuki '003 and **Hamamura '748**, alone or in combination, fail to describe, teach, or suggest the combination of features set forth in claim 10, as amended, including at least the following features:

a process that detects a shutter operation in the middle of a focusing action of said focusing mechanism; a process that decides whether the optical system is in a final lens position or not during a focusing action of the focusing mechanism; a process that detects said shutter operation and, if the optical system is not in the final lens position, switches to said fixed focus position from said auto-focusing position of said optical system under the focusing action; and a process that takes a fixed focus image caught at said fixed focus.

Ohnuki '003 and **Hamamura '748**, alone or in combination, fail to describe, teach, or suggest the combination of features set forth in claim 12, as amended, including at least the following features:

a process that detects a shutter operation in the middle of a focusing action of said focusing mechanism; a process that decides whether the optical system is in a final lens position or not during a focusing action of the focusing mechanism; and a process that detects said shutter operation and, if the optical system is not in the final lens position, takes an auto-focusing image caught by said imaging part in the middle of the focusing action.

Claim 2 has the structure that "said controller compares between a time required for bringing into focus in said focusing mechanism and a time from starting of the focusing action until starting

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of said shutter operation, and changes said optical system to said auto-focusing position or said fixed focus position based on a result of the comparison.”

Column 19, line 67 to column 20, line 25 of **Ohnuki '003** (listed by the Examiner in the Office Action regarding claim 2, before the amendments herein) states as follows:

At first, similarly to the embodiment of FIG. 1, the second focus adjusting operation is carried out. That is, the first focus detecting operation is started at the time $t_{\text{sub.1}}$ to obtain the defocus quantity $DF1$, and the lens is driven by the driving amount $DL1$. From the time $t_{\text{sub.2}}$, the defocus quantity $DF2$ is likewise obtained and the lens is driven by the driving amount $DL2$. Subsequently, from the time $t_{\text{sub.3}}$ the third focus detecting operation is started. At the time $t_{\text{sub.3'}}$, the defocus computation and the predictive computation are complete. While in the case of FIG. 1 the predicted position after the end of the lens driving is the point $p_{\text{sub.4}}$ at the time $t_{\text{sub.3'}}$, it is in the case of FIG. 13 that because not only the lens drive expected period $TL3I$ but also the release time lag TR must be considered, the predicted position of the image plane comes to a point $p_{\text{sub.4'}}$, and the required lens drive amount becomes " $DL3$ " in the graph. So, if the lens is driven by the driving amount $DL3$, it is in the ideal case that the lens will probably arrive at a point $q_{\text{sub.4}}$. That is, the object image plane position on supposition by taking into account the release time lag, or the target position of the lens drive control lies on a function $f(t)$ obtained by moving the function $f(t)$ on the time axis in parallel to the left by the distance TR . Hence, if the lens is driven to this position, the in-focus position is maintained in coincidence despite the stoppage of the lens at the start of the release operation.

As is clear from the above, **Ohnuki '003** discloses that with considering the lens drive expected period and the release time lag, the required lens drive amount is calculated.

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Column 22, lines 20-29 of **Ohnuki '003** (listed by the Examiner in the Office Action regarding claim 2, before the amendments herein) states as follows:

Now, when the release start signal is produced at the time $t_{\text{sub.R}}$, the lens is immediately stopped in the position of the point $l_{\text{sub.R}}$ and the release operation of the camera is started, and, in the release time lag T_R , or at the time $t_{\text{sub.S}}$, the shutter curtain runs to initiate an exposure. Since, at this time, the lens lies at the point $l_{\text{sub.S}}$ and the object image plane lies at the point $f_{\text{sub.S}}$, the defocus quantity of the taken photograph becomes $d_{\text{sub.S}}$. Thus, the focus error is almost removed.

As is clear from the above, **Ohnuki '003** discloses that when the release start signal is produced, the lens is stopped and the release operation is started. Thus, the focus error is removed.

If claim 2 is compared with **Ohnuki '003**, while claim 2 compares between a time required for bringing into focus and a time from starting of the focusing action until the shutter operation, **Ohnuki '003** merely considers the lens drive expected period and the release time lag.

While claim 2 changes the optical system to the auto-focusing position or said fixed focus position based on a result of the comparison, **Ohnuki '003** merely stops the lens and starts the release operation by the production of the release start signal, and removes the focus error.

Ohnuki '003 and **Hamamura '748**, alone or in combination, fail to describe, teach, or

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suggest the features set forth in claim 2. Accordingly, in view of the above, Applicants respectfully submit that this rejection of claim 2 should be withdrawn.

Claims 3 and 7 have the structure that "said switch is provided as a first switch, and a switch which is used in photographing by a fixed focus is also provided as a second switch separated from the first switch."

Column 9, lines 1-11 of **Ohnuki '003** (listed by the Examiner in the Office Action regarding claims 3 and 7, before the amendments herein) states as follows:

Switches SW1 and SW2 cooperate with a release button (not shown) in such a way that when the release button is pushed to a first stroke, the switch SW1 turns on. Upon further depression of the release button to a second stroke, the switch SW2 turns on. The computer PRS, as will more fully be described later, responsive to closure of the switch SW1 performs a light measuring and automatic focus adjusting operation, and takes the closure of the switch SW2 as a trigger for the exposure control and the winding-up of the film that follows the exposure. Incidentally, the switch SW2 is connected to an interrupt input terminal of the microcomputer PRS.

As is clear from the above disclosure, **Ohnuki '003** discloses switches SW1 and SW2 cooperating with pushing a release button. SW1 is used for a light measuring and automatic focus adjusting operation. SW2 is used as a trigger for the exposure control and the winding-up of the film.

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When claims 3 and 7 are compared with **Ohnuki '003**: while claims 3 and 7 provide a second switch used in photographing by a fixed focus, separated from the first switch used in focusing or capturing the image (photographing), **Ohnuki '003** merely includes SW1 used for a light measuring and automatic focus adjusting operation and SW2 used as a trigger for the exposure control and winding-up of the film.

While claims 3 and 7 provide two shutter switches that have different functions of an auto-focusing function and fixed focus function respectively to the same purpose of photographing, **Ohnuki '003** merely has two switches cooperating with pushing one shutter button, and used for different purposes.

Accordingly, in view of the above, Applicants respectfully submit that this rejection of claims 3 and 7 should be withdrawn.

Ohnuki '003 and **Hamamura '748**, alone or in combination, fail to describe, teach, or suggest the combination of features set forth in claim 13, as amended, including at least the following features:

a step that detects a shutter operation in the middle of a focusing action of said focusing mechanism; a step that decides whether the optical system is in a final lens position or not during a focusing action of the focusing mechanism; a step that

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detects said shutter operation and, if the optical system is not in the final lens position, switches to said fixed focus position from said auto-focusing position of said optical system under the focusing action; and a step that takes a fixed focus image caught at said fixed focus.

Accordingly, in view of the above, Applicants respectfully submit that this rejection of claim 13 should be withdrawn.

Ohnuki '003 and **Hamamura '748**, alone or in combination, fail to describe, teach, or suggest the combination of features set forth in claim 14, as amended, including at least the following features:

a step that detects a shutter operation in the middle of a focusing action of said focusing mechanism; a step that decides whether the optical system is in a final lens position or not during a focusing action of the focusing mechanism; and a step that detects said shutter operation and, if the optical system is not in the final lens position, takes an auto-focusing image caught by said imaging part in the middle of the focusing action.

Accordingly, in view of the above, Applicants respectfully submit that this rejection of claim 14 should be withdrawn.

Ohnuki '003 and **Hamamura '748**, alone or in combination, fail to describe, teach, or suggest the combination of features set forth in claim 15, as amended, including at least the

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following features:

a detection part that detects a shutter operation in the middle of a focusing action of said focusing mechanism; and a control part that decides whether the optical system is in a final lens position or not and, on the basis of a detection of said detection part, switches to said fixed focus position from said auto-focusing position of said optical system under the focusing action and takes a fixed focus image caught at said fixed focus if the optical system is not in the final lens position.

Accordingly, in view of the above, Applicants respectfully submit that this rejection of claim 15 should be withdrawn.

Ohnuki '003 and **Hamamura '748**, alone or in combination, fail to describe, teach, or suggest the combination of features set forth in claim 16, as amended, including at least the following features:

a detection part that detects a shutter operation under a focusing action of said focusing mechanism; and a control part that decides whether the optical system is in a final lens position or not and takes an auto-focusing image in the middle of the focusing action based on a detection of said shutter operation of said detection part if the optical system is not in the final lens position.

Accordingly, in view of the above, Applicants respectfully submit that this rejection of claim 16 should be withdrawn.

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Applicants respectfully submit that this rejection of claims 1, 6, 10, and 12-16 should be withdrawn. It is submitted that this rejection of claims 2-4, 7, and 8 should be withdrawn because of their dependency, and also because of the additional reasons discussed herein above.

C. The Examiner has rejected claims 5 and 9 under 35 U.S.C. §103(a) as obvious over U.S. Patent No. 4,969,003 (**Ohnuki '003**) in view of U.S. Patent No. 5,815,748 (**Hamamura '748**) and U.S. Patent No. 7,119,843 (**Terasaki '843**).

Applicants respectfully traverse this rejection, for the following reasons.

Column 5, lines 8-13 of **Terasaki '843** (listed by the Examiner in the Office Action regarding claims 5 and 9, before the amendments herein) states as follows:

As shown in FIG. 5, the mobile phone includes the speaker part 9, the holding part 13, the video camera part 11, and the display eyepiece part 6a arranged in this order. In addition a shutter button 12 for the video camera part 11 is arranged in a position easy to press with a finger when the user holds the phone body 1 at the holding part 13.

Column 4, lines 19-29 of **Terasaki '843** (listed by the Examiner in the Office Action regarding claims 5 and 9, before the amendments herein) states as follows:

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The arm 6 for mounting the optical system 4c on an eyepiece part side is provided to the phone body 1 with a hinge 5 so as to be foldable. As shown in FIG. 1, the image information driving part 3, an optical system 4a on an image information driving part side, and a part of the folding-part 4c are formed on the phone body 1. Another part of the folding part 4b and the optical system 4c on an eyepiece part side are formed on the arm 6. The display eyepiece part 6a is formed of the part of the folding part 4b and the optical system 4c on an eyepiece part side provided to the arm 6.

As is clear from the above, **Terasaki '843** discloses that in the phone body 1 and the arm 6 with a hinge 5 so as to be foldable, the image information driving part 3 is mounted on the phone body 1, and the optical system 4c is mounted on the arm 6.

Ohnuki '003, Hamamura '748, and Terasaki '843, alone or in combination, fail to describe, teach, or suggest the combination of features set forth in claim 1, as amended, including at least the following features:

a switch that functions as a focusing switch and also functions as a shutter switch, wherein said switch when operated orders a focusing action or orders capturing of the image; and a controller that decides whether the optical system is in a final lens position or not during a focusing action of said focusing mechanism due to said switch, and in the case where a shutter operation of said switch is performed under a state that the optical system is not in the final lens position, shifts said optical system to a fixed focus position from an auto-focusing position and takes a fixed focus image.

Ohnuki '003, Hamamura '748, and Terasaki '843, alone or in combination, fail to

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describe, teach, or suggest the combination of features set forth in claim 6, as amended, including at least the following features:

a switch that functions as a focusing switch and also functions as a shutter switch, wherein said switch according to a condition of operation orders a focusing action or the capturing of the image; and a controller that decides whether the optical system is in a final lens position or not during a focusing action of said focusing mechanism due to said switch, and in the case where a shutter operation of said switch is performed under a state that the optical system is not in the final lens position takes an image at a focus position in the middle of the focusing action.

Accordingly, in view of the above, Applicants respectfully submit that this rejection of claims 5 and 9 should be withdrawn by virtue of their dependency.

D. The Examiner has rejected claim 11 under 35 U.S.C. §103(a) as obvious over U.S. Patent No. 4,969,003 (Ohnuki '003) in view of U.S. Patent No. 5,815,748 (Hamamura '748) and U.S. Patent No. 5,001,507 (Iida '507).

Applicants respectfully traverse this rejection, for the following reasons.

Claim 11 has "a process that superimposes a focusing mark representative of a distance between a pictured object and the optical system on an image, in the middle of said focusing action, which is caught by said imaging part, and displays it."

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Column 13, lines 47-61 of **Iida '507** (listed by the Examiner in the Office Action regarding claim 11, before the amendments herein) states as follows:

If, then, it is found that the lens is stopped at the extreme closest distance, it is judged whether the focus detection has been made on the large zone or on the small zone according to the state of the small zone display flag F (step S74). If it has been on the small zone, the focus detection area display pattern corresponding to the small zone in the viewfinder is intermittently blinked on and off as the alarming display for the arrival at the closest distance (step S75), and if it has been on the large zone, the focus detection area display pattern corresponding to the large zone is intermittently blinked on and off as the alarming display for the arrival at the closest distance (step S76), and thereafter the program returns to step S52 for execution of next sequence.

As is clear from the above, **Iida '507** discloses that according to the focus detection being on the large zone or small zone, the display pattern corresponding to each zone is displayed in the viewfinder.

When claim 11 is compared with **Iida '507**: while the focus mark displayed in claim 11 represents a distance between a pictured object and the optical system, the display pattern in **Iida '507** merely represents size of a zone for the focus detection and an alarm that the focus detection is impossible.

Ohnuki '003, Hamamura '748, and Iida '507, alone or in combination, fail to describe,

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teach, or suggest the combination of features set forth in claim 10, as amended, including at least the following features:

a process that detects a shutter operation in the middle of a focusing action of said focusing mechanism; a process that decides whether the optical system is in a final lens position or not during a focusing action of the focusing mechanism; a process that detects said shutter operation and, if the optical system is not in the final lens position, switches to said fixed focus position from said auto-focusing position of said optical system under the focusing action; and a process that takes a fixed focus image caught at said fixed focus.

Applicants respectfully submit that this rejection of claim 11 should be withdrawn because of its dependency, and also because of the additional reasons discussed herein above.

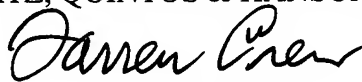
If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact the Applicants' undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

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In the event that this paper is not timely filed, the Applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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